

SEQUENCE LISTING

RECEIVED

APR 1 0 2003

TECH GENTER 1600/2900

```
<110> Prayaga, Suhhirdas K
Shimkets, Richard A
```

<120> Novel Polypeptides and Polynucleotides Encoding Same

<130> 15966-615

<140> 09/732,436

<141> 2000-12-07

<150> 60/169,887

<151> 1999-12-09

.<150> 60/170,230

<151> 1999-12-10

<160> 27

<170> PatentIn Ver. 2.1

<210> 1

<211> 475

<212> DNA

<213> Homo sapiens

<400> 1

accaatggtc tccttgctgg tggcattggt gatgatetcc tgccacatct attecetttt 60 ctgcgacctg cctaaagetc aggtgatttc tgccetccat aagatgcacc agcagatett 120 cagcetett ttacacaagg gettgtetga tgettggaat agggeettee tggacaaact 180 ccagactgga tttcatcage agetggaaga cetggagace tgetttggta tagaggatgg 240 gaagcaagag tetgeeetgg aaattgaggg ceetacactg gecataaaga ggtaetteea 300 gggagtacat ttettettga aagagaggaa atteaggaac tgtacetggg aggttgtegt 360 aatggtaaag ggattttee taagcacaaa actteaagaa aaagagaaca gaagaaaaga 420 gaactgcaaa aaaaatetgg aaaaggtaat etatttagca gaagagtgaa agetg 475

<210> 2

<211> 154

<212> PRT

<213> Homo sapiens

<400> 2

Met Val Ser Leu Leu Val Ala Leu Val Met Ile Ser Cys His Ile Tyr 1 5 10 15

Ser Leu Phe Cys Asp Leu Pro Lys Ala Gln Val Ile Ser Ala Leu His

Lys Met His Gln Gln Ile Phe Ser Leu Phe Leu His Lys Gly Leu Ser 35 40 45

Asp Ala Trp Asn Arg Ala Phe Leu Asp Lys Leu Gln Thr Gly Phe His 50 55 60

Gln Gln Leu Glu Asp Leu Glu Thr Cys Phe Gly Ile Glu Asp Gly Lys



65 70 75 80

Gln Glu Ser Ala Leu Glu Ile Glu Gly Pro Thr Leu Ala Ile Lys Arg 85 90 95

Tyr Phe Gln Gly Val His Phe Phe Leu Lys Glu Arg Lys Phe Arg Asn 100 105 110

Cys Thr Trp Glu Val Val Met Val Lys Gly Phe Phe Leu Ser Thr 115 120 125

Lys Leu Gln Glu Lys Glu Asn Arg Arg Lys Glu Asn Cys Lys Lys Asn 130 135 140

Leu Glu Lys Val Ile Tyr Leu Ala Glu Glu 145 150

<210> 3

<211> 610

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (74)..(208)

<223> Wherein n is a or t or c or g.

<400> 3

Brant

<210> 4

<211> 199

<212> PRT

<213> Homo sapiens

<220>

<221> VARIANT

<222> (24)..(68)

<223> Wherein Xaa is any amino acid.

<400> 4

Met Val Ser Leu Leu Val Ala Leu Val Met Ile Ser Cys His Ile Tyr 1 5 10 15

Ser Leu Phe Cys Asp Leu Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

20 25 30

40 Xaa Xaa Xaa Lys Ala Gln Val Ile Ser Ala Leu His Lys Met His Gln Gln Ile Phe Ser Leu Phe Leu His Lys Gly Leu Ser Asp Ala Trp 90 Asn Arg Ala Phe Leu Asp Lys Leu Gln Thr Gly Phe His Gln Gln Leu Glu Asp Leu Glu Thr Cys Phe Gly Ile Glu Asp Gly Lys Gln Glu Ser 120 Ala Leu Glu Ile Glu Gly Pro Thr Leu Ala Ile Lys Arg Tyr Phe Gln 130 135 Gly Val His Phe Phe Leu Lys Glu Arg Lys Phe Arg Asn Cys Thr Trp 150 155 Glu Val Val Val Met Val Lys Gly Phe Phe Leu Ser Thr Lys Leu Gln 165 170 Glu Lys Glu Asn Arg Arg Lys Glu Asn Cys Lys Lys Asn Leu Glu Lys 180 185

Val Ile Tyr Leu Ala Glu Glu 195

<210> 5 <211> 1887 <212> DNA <213> Homo sapiens

<400> 5

atggccatcc tcccgttgct cctgtgcctg ctgccgctgg cccctgcctc atccccaccc 60 cagtcagcca cacccagccc atgtccccgc cgctgccgct gccagacaca gtcgctgccc 120 ctaagcgtgc tgtgcccagg ggcaggcctc ctgttcgtgc caccctcgct ggaccgccgg 180 gcagccgagc tgcggctgc agacaacttc atcgcctcg tgcgccgccg cgacctggcc 240 aacatgacag gcctgctgc tctgagcctg tcgcggaaca ccatccgcca cgtggctgcc 300 ggcgccttcg ccgacctgcg ggccctgcgt gccctgcacc tggatggcaa ccggctgacc 360 tcactgggcg agggccagct gcgcggcctg gtcaacttgc gccacctcat cctcagcaac 420 aaccagctgg cagcgtggc ggccggccc ctggatgatt gtgccgagac actggaggac 480 ctcgacctct cctacaacaa cctcgagcag ctgccctggg aggccctggg ccggcctgg acacgtcag ccgcctggg ccgcctggc ctgcacctcat cctcagcaac 420 aacgtcaaca cgttgggcc cgaccacaac ctgctggct ctgtgcccg cggcgtttt 600 tcccgcctgc acaagctggc ccggctggac atgacctca accgcctgac cacaatccca 660 cccgaccaca tcttccccg cctgccctg ctcgccaggc cccggggctc gcccgcctct 720 gccctggtc tggcctttgg cgggaacccc ctgcactga actgcgagct ggtgtggctg 780 cgtcgcctgg cgcggtggg cgaggagga cgacctcgag gcctgcgct cccacctgc tctgggcgg 840 cgctacttct gggggaggag cgaggaggag tttgtctgg agccccgt ggtgaccca 900

cgctcaccac ctctggctgt gcccgcaggt cggccggctg ccctgcgctg ccgggcagtg 960 ggggacccag agccccgtgt gcgttgggtg tcaccccagg gccggctgct aggcaactca 1020 agccgtgccc gcgccttccc caatgggacg ctggagctgc tggtcaccga gccgggtgat 1080 ggtggcatct tcacctgcat tgcggccaat gcagctggcg aggccacagc tgctgtggag 1140 ctgactgtgg gtcccccacc acctcctcag ctagccaaca gcaccagctg tgaccccccg 1200 cgggacgggg atcctgatgc tctcacccca ccctccgctg cctctgcttc tgccaaggtg 1260 gccgacactg ggccccctac cgaccgtggc gtccaggtga ctgagcacgg ggccacagct 1320 gctcttgtcc agtggccgga tcagcggcct atcccgggca tccgcatgta ccagatccag 1380 tacaacagct cggctgatga catcctcgtc tacaggatga tcccggcgga gagccgctcg 1440 ttcctgctga cggacctggc gtcaggccgg acctacgatc tgtgcgtgct cgccgtgtat 1500 gaggacageg ceaegggget caeggecaeg eggeetgtgg getgegeeeg etteteeaee 1560 gaacctgcgc tgcggccatg cggggcgccg cacgctccct tcctgggcgg cacgatgatc 1620 ategegetgg geggegteat egtageeteg gtactggtet teatettegt getgetaatg 1680 cgctacaagg tgcacggcgg ccagccccc ggcaaggcca agattcccgc gcctgttagc 1740 agogtttgct cccagaccaa cggcgccctg ggccccacgc ccacgcccgc cccgcccgcc 1800 ccggagcccg cggcgctcag ggcccacacc gtggtccagc tggactgcga gccctggggg 1860 cccggccacg aacctgtggg accctag <210> 6 <211> 628 <212> PRT <213> Homo sapiens <400> 6 Met Ala Ile Leu Pro Leu Leu Cys Leu Leu Pro Leu Ala Pro Ala Ser Ser Pro Pro Gln Ser Ala Thr Pro Ser Pro Cys Pro Arg Arg Cys 25 Arg Cys Gln Thr Gln Ser Leu Pro Leu Ser Val Leu Cys Pro Gly Ala 35 40 Gly Leu Leu Phe Val Pro Pro Ser Leu Asp Arg Arg Ala Ala Glu Leu 55 Arg Leu Ala Asp Asn Phe Ile Ala Ser Val Arg Arg Arg Asp Leu Ala 65 70 75 Asn Met Thr Gly Leu Leu His Leu Ser Leu Ser Arg Asn Thr Ile Arg His Val Ala Ala Gly Ala Phe Ala Asp Leu Arg Ala Leu Arg Ala Leu 105 His Leu Asp Gly Asn Arg Leu Thr Ser Leu Gly Glu Gly Gln Leu Arg 115 120 Gly Leu Val Asn Leu Arg His Leu Ile Leu Ser Asn Asn Gln Leu Ala 135

1887

145

170

155

160

175

Ala Leu Ala Ala Gly Ala Leu Asp Asp Cys Ala Glu Thr Leu Glu Asp

Leu Asp Leu Ser Tyr Asn Asn Leu Glu Gln Leu Pro Trp Glu Ala Leu

150

Gly Arg Leu Gly Asn Val Asn Thr Leu Gly Leu Asp His Asn Leu Leu Ala Ser Val Pro Ala Gly Ala Phe Ser Arg Leu His Lys Leu Ala Arg 200 Leu Asp Met Thr Ser Asn Arg Leu Thr Thr Ile Pro Pro Asp Pro Leu 210 215 Phe Ser Arg Leu Pro Leu Leu Ala Arg Pro Arg Gly Ser Pro Ala Ser 230 235 Ala Leu Val Leu Ala Phe Gly Gly Asn Pro Leu His Cys Asn Cys Glu 250 Leu Val Trp Leu Arg Arg Leu Ala Arg Glu Asp Asp Leu Glu Ala Cys 260 265 Ala Ser Pro Pro Ala Leu Gly Gly Arg Tyr Phe Trp Ala Val Gly Glu 280 Glu Glu Phe Val Cys Glu Pro Pro Val Val Thr His Arg Ser Pro Pro 290 295 Leu Ala Val Pro Ala Gly Arg Pro Ala Ala Leu Arg Cys Arg Ala Val Gly Asp Pro Glu Pro Arg Val Arg Trp Val Ser Pro Gln Gly Arg Leu 330 Leu Gly Asn Ser Ser Arg Ala Arg Ala Phe Pro Asn Gly Thr Leu Glu 340 345 Leu Leu Val Thr Glu Pro Gly Asp Gly Gly Ile Phe Thr Cys Ile Ala 360 Ala Asn Ala Ala Gly Glu Ala Thr Ala Ala Val Glu Leu Thr Val Gly 370 375 Pro Pro Pro Pro Gln Leu Ala Asn Ser Thr Ser Cys Asp Pro Pro 385 Arg Asp Gly Asp Pro Asp Ala Leu Thr Pro Pro Ser Ala Ala Ser Ala 410 Ser Ala Lys Val Ala Asp Thr Gly Pro Pro Thr Asp Arg Gly Val Gln 420 Val Thr Glu His Gly Ala Thr Ala Ala Leu Val Gln Trp Pro Asp Gln 440 Arg Pro Ile Pro Gly Ile Arg Met Tyr Gln Ile Gln Tyr Asn Ser Ser

455

470

Ala Asp Asp Ile Leu Val Tyr Arg Met Ile Pro Ala Glu Ser Arg Ser

Dant

450

465

Phe Leu Leu Thr Asp Leu Ala Ser Gly Arg Thr Tyr Asp Leu Cys Val 485 490 Leu Ala Val Tyr Glu Asp Ser Ala Thr Gly Leu Thr Ala Thr Arg Pro 500 505 Val Gly Cys Ala Arg Phe Ser Thr Glu Pro Ala Leu Arg Pro Cys Gly 520 515 Ala Pro His Ala Pro Phe Leu Gly Gly Thr Met Ile Ile Ala Leu Gly 535 Gly Val Ile Val Ala Ser Val Leu Val Phe Ile Phe Val Leu Leu Met 545 550 555 Arg Tyr Lys Val His Gly Gly Gln Pro Pro Gly Lys Ala Lys Ile Pro 565 570 Ala Pro Val Ser Ser Val Cys Ser Gln Thr Asn Gly Ala Leu Gly Pro 585 Thr Pro Thr Pro Ala Pro Pro Ala Pro Glu Pro Ala Ala Leu Arg Ala 595 600 His Thr Val Val Gln Leu Asp Cys Glu Pro Trp Gly Pro Gly His Glu 610 615 620 Pro Val Gly Pro 625 <210> 7 <211> 802 <212> DNA <213> Equus caballus <400> 7 aaatcagaga tattataagt acacatatcc ctattaacgg cctagttggc aagaatgtca 60 tcagagaacc tcggtccaag ttcagagaca cccagctcag ccaggccagc agcacctcg 120 ttttccccat ggccctcctg ccctctctct tgacggccct ggtggtgtac gagttatggc 180 cctgtggagc tctgggctgt gacctgcctc agaaccacat cctggttagc aggaagaact 240 tcgtgcttct gggccaaatg agcagaatct cctccgcaat ctgtctgaag gacagaaaag 300 acttcaggtt cccccaggac atggcggatg gcaggcagtt cccagaggcc caggccgcgt 360 ctgtcctcca cgagatgctc cagcagatct tcagcctctt ccacacagag cgctcgtctg 420 ctgcctggaa cacgaccctc ctggacgaac tctgcacggg actccttcgg cagctggaag 480 acctggacac ctgtttggag caggagatgg gagaggaaga atctgccctg ggaactgtgc 540 gccctacact ggccgtgaag aggtacttcc gggggatcca tctctacctg aaagagaaga 600 aatacagtga ctgtgcctgg gagattgtcc gaatggaaat catgagatcc ttctcttcat 660

<210> 8

<211> 195

tcttatttct gctttagtct ag

<212> PRT

802

cagcaaacct gcaaggaagg ttaagaatga aggatggaga cctgggctca ccttgaaatg 720 attctcctta actactgggt catgttaccc ttgcatatgt ccttggtcat ttcaaaaggc 780

<213> Homo sapiens

<400> 8

Met Ala Leu Leu Phe Pro Leu Leu Ala Ala Leu Val Met Thr Ser Tyr

1 10 15

Ser Pro Val Gly Ser Leu Gly Cys Asp Leu Pro Gln Asn His Gly Leu 20 25 30

Leu Ser Arg Asn Thr Leu Val Leu Leu His Gln Met Arg Arg Ile Ser 35 40 45

Pro Phe Leu Cys Leu Lys Asp Arg Arg Asp Phe Arg Phe Pro Gln Glu 50 55 60

Met Val Lys Gly Ser Gln Leu Gln Lys Ala His Val Met Ser Val Leu 65 70 75 80

His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser 85 90 95

Ser Ala Ala Trp Asn Met Thr Leu Leu Asp Gln Leu His Thr Gly Leu
100 105 110

His Gln Gln Leu Gln His Leu Glu Thr Cys Leu Leu Gln Val Gly
115 120 125

Glu Gly Glu Ser Ala Gly Ala Ile Ser Ser Pro Ala Leu Thr Leu Arg 130 135 140

Arg Tyr Phe Gln Gly Ile Arg Val Tyr Leu Lys Glu Lys Lys Tyr Ser 145 150 155 160

Asp Cys Ala Trp Glu Val Val Arg Met Glu Ile Met Lys Ser Leu Phe 165 170 175

Leu Ser Thr Asn Met Gln Glu Arg Leu Arg Ser Lys Asp Arg Asp Leu 180 185 190

Gly Ser Ser 195

<210> 9

<211> 195

<212> PRT

<213> Equus caballus

<400> 9

Met Ala Phe Ser Val Ser Ser Leu Met Ala Leu Val Val Ile Ser Ser 1 5 10 15

Ser Pro Val Ser Ser Met Ser Cys Asp Leu Pro Ala Ser Leu Asp Leu 20 25 30

Arg Lys Gln Glu Thr Leu Arg Val Leu His Gln Met Glu Thr Ile Ser 35 40 45

Pro Pro Ser Cys Leu Lys His Arg Thr Asp Phe Arg Phe Pro Gln Glu Gln Leu Asp Gly Arg Gln Phe Pro Glu Ala Gln Ala Thr Ser Val Leu 70 75 Gln Glu Met Leu Gln Gln Ile Val Ser Leu Phe His Thr Glu Arg Ser 85 Ser Ala Ala Trp Asn Thr Thr Leu Leu Asp Arg Leu Leu Ala Gly Leu 100 105 His Gln Gln Leu Glu Asp Leu Asn Thr Cys Leu Asp Glu Gln Thr Gly 120 Glu Glu Glu Ser Ala Leu Gly Thr Val Gly Pro Thr Leu Ala Val Lys 130 135 Arg Tyr Phe Arg Arg Ile Arg Leu Tyr Leu Thr Glu Lys Lys Tyr Ser 150 155 Asp Cys Ala Trp Glu Ile Val Arg Val Asp Ile Met Arg Ser Phe Ser Ser Ser Ala Asn Leu Gln Gly Arg Leu Gly Met Lys Asp Gly Asp Leu 180 185 Gly Ser Pro 195 <210> 10 <211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00143 Domain 71-187

<400> 10

Ser His Lys Ala Gln Ala Leu Ser Val Val His Val Thr Asn Gln Lys 10

Ile Phe His Phe Phe Cys Thr Glu Ala Ser Ser Ser Ala Ala Trp Asn

Thr Thr Leu Leu Glu Glu Phe Cys Thr Gly Leu Asp Arg Gln Leu Thr 45 35

Arg Leu Glu Ala Cys Val Leu Gln Glu Val Glu Glu Gly Glu Ala Pro 55

Leu Thr Asn Glu Asp Ile His Pro Glu Asp Ser Ile Leu Arg Asn Tyr 75

Phe Gln Arg Leu Ser Leu Tyr Leu Gln Glu Lys Lys Tyr Ser Pro Cys 85 90 95

Ala Trp Glu Ile Val Arg Ala Glu Ile Met Arg Ser Leu Tyr Tyr Ser 100 105 110

Ser Thr Ala Leu Gln 115

<210> 11

<211> 194

<212> PRT

<213> Felis catus

<400> 11

Met Ala Leu Pro Ser Ser Phe Leu Val Ala Leu Val Ala Leu Gly Cys
1 5 10 15

Asn Ser Val Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Gly Leu 20 25 30

Leu Asn Arg Arg Ala Leu Thr Leu Leu Gly Gln Met Arg Arg Leu Pro
35 40 45

Ala Ser Ser Cys Gln Lys Asp Arg Asn Asp Phe Ala Phe Pro Gln Asp 50 55 60

Val Phe Gly Gly Asp Gln Ser His Lys Ala Gln Ala Leu Ser Val Val 65 70 75 80

His Val Thr Asn Gln Lys Ile Phe His Phe Phe Cys Thr Glu Ala Ser 85 90 95

Ser Ser Ala Ala Trp Asn Thr Thr Leu Leu Glu Glu Phe Cys Thr Gly
100 105 110

Leu Asp Arg Gln Leu Thr Arg Leu Glu Ala Cys Val Leu Gln Glu Val 115 120 125

Glu Glu Gly Glu Ala Pro Leu Thr Asn Glu Asp Ile His Pro Glu Asp 130 135 140

Ser Ile Leu Arg Asn Tyr Phe Gln Arg Leu Ser Leu Tyr Leu Gln Glu 145 150 155 160

Lys Lys Tyr Ser Pro Cys Ala Trp Glu Ile Val Arg Ala Glu Ile Met 165 170 175

Arg Ser Leu Tyr Tyr Ser Ser Thr Ala Leu Gln Lys Arg Leu Arg Ser 180 185 190

Glu Lys

<210> 12



```
<211> 195
<212> PRT
<213> Homo sapiens
<400> 12
Met Ala Phe Val Leu Ser Leu Leu Met Ala Leu Val Leu Val Ser Tyr
Gly Pro Gly Gly Ser Leu Gly Cys Asp Leu Ser Gln Asn His Val Leu
Val Gly Arg Lys Asn Leu Arg Leu Leu Asp Glu Met Arg Arg Leu Ser
         35
                             40
                                                  45
Pro His Phe Cys Leu Gln Asp Arg Lys Asp Phe Ala Leu Pro Gln Glu
Met Val Glu Gly Gln Leu Gln Glu Ala Gln Ala Ile Ser Val Leu
                     70
                                         75
His Glu Met Leu Gln Gln Ser Phe Asn Leu Phe His Thr Glu His Ser
                 85
Ser Ala Ala Trp Asp Thr Thr Leu Leu Glu Pro Cys Arg Thr Gly Leu
                                105
His Gln Gln Leu Asp Asn Leu Asp Ala Cys Leu Gly Gln Val Met Gly
                            120
Glu Glu Asp Ser Ala Leu Gly Arg Thr Gly Pro Thr Leu Ala Leu Lys
Arg Tyr Phe Gln Gly Ile His Val Tyr Leu Lys Glu Lys Gly Tyr Ser
                    150
Asp Cys Ala Trp Glu Thr Val Arg Leu Glu Ile Met Arg Ser Phe Ser
                165
Ser Leu Ile Ser Leu Gln Glu Arg Leu Arg Met Met Asp Gly Asp Leu
            180
                                185
                                                     190
Ser Ser Pro
        195
<210> 13
<211> 195
<212> PRT
<213> Equus caballus
```

D5 CM

<400> 13

Met Ala Leu Leu Pro Ser Leu Leu Thr Ala Leu Val Val Tyr Glu Leu 1 5 10 15

Trp Pro Cys Gly Ala Leu Gly Cys Asp Leu Pro Gln Asn His Ile Leu 20 25 30

Val Ser Arg Lys Asn Phe Val Leu Leu Gly Gln Met Ser Arg Ile Ser 35 Ser Ala Ile Cys Leu Lys Asp Arg Lys Asp Phe Arg Phe Pro Gln Asp Met Ala Asp Gly Arg Gln Phe Pro Glu Ala Gln Ala Ser Val Leu 70 His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser 90 Ser Ala Ala Trp Asn Thr Thr Leu Leu Asp Glu Leu Cys Thr Gly Leu 100 105 Leu Arg Gln Leu Glu Asp Leu Asp Thr Cys Leu Glu Gln Glu Met Gly 120 Glu Glu Glu Ser Ala Leu Gly Thr Val Arg Pro Thr Leu Ala Val Lys 130 Arg Tyr Phe Arg Gly Ile His Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Met Glu Ile Met Arg Ser Phe Ser 165 170 Ser Ser Ala Asn Leu Gln Gly Arg Leu Arg Met Lys Asp Gly Asp Leu 180 185

Gly Ser Pro 195

<210> 14

<211> 195

<212> PRT

<213> Homo sapiens

<400> 14

Met Ala Leu Leu Phe Pro Leu Leu Ala Ala Leu Val Met Thr Ser Tyr 1 5 10 15

Ser Pro Val Gly Ser Leu Gly Cys Asp Leu Pro Gln Asn His Gly Leu 20 25 30

Leu Ser Arg Asn Thr Leu Val Leu Leu His Gln Met Arg Arg Ile Ser 35 40 45

Pro Phe Leu Cys Leu Lys Asp Arg Asp Phe Arg Phe Pro Gln Glu 50 55 60

Met Val Lys Gly Ser Gln Leu Gln Lys Ala His Val Met Ser Val Leu 65 70 75 80

His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser 85 90 95

```
Ser Ala Ala Trp Asn Met Thr Leu Leu Asp Gln Leu His Thr Gly Leu
            100
                                105
His Gln Gln Leu Gln His Leu Glu Thr Cys Leu Leu Gln Val Val Gly
                            120
Glu Gly Glu Ser Ala Gly Ala Ile Ser Ser Pro Ala Leu Thr Leu Arg
    130
                        135
Arg Tyr Phe Gln Gly Ile Arg Val Tyr Leu Lys Glu Lys Lys Tyr Ser
                    150
Asp Cys Ala Trp Glu Val Val Arg Met Glu Ile Met Lys Ser Leu Phe
                                    170
Leu Ser Thr Asn Met Gln Glu Arg Leu Arg Ser Lys Asp Arg Asp Leu
            180
                                185
                                                     190
Gly Ser Ser
        195
<210> 15
<211> 65
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence:Consensus
      sequence
<400> 15
Ala Gln Ser Val Leu His Met Gln Gln Ile Phe Leu Phe Thr Glu Ser
                  5
Ser Ala Ala Trp Asn Thr Leu Leu Thr Gly Leu Gln Leu Cys Gln
                                 25
Gly Glu Glu Ser Ala Leu Pro Leu Arg Tyr Phe Gln Gly Tyr Leu Lys
         35
                             40
                                                  45
Glu Lys Lys Tyr Ser Cys Ala Trp Glu Val Arg Glu Ile Met Ser Leu
                         55
Gln
 65
<210> 16
<211> 166
<212> PRT
<213> Homo sapiens
```

D5 Cont

<400> 16

1

15

10

Met Ser Tyr Asn Leu Leu Gly Phe Leu Gln Arg Ser Ser Asn Phe Gln

Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg Leu Glu Tyr Cys Leu 20 25 30

Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln 35 40 45

Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln 50 55 60

Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn 65 70 75 80

Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn 85 90 95

His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr
100 105 110

Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg 115 120 125

Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp Thr 130 135 140

Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu 145 150 155 160

Thr Gly Tyr Leu Arg Asn 165

<210> 17

<211> 165

<212> PRT

<213> Homo sapiens

<400> 17

Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met
1 5 10 15

Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp 20 25 30

Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Gly Asn Gln Phe Gln 35 40 45

Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe 50 55 60

Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu 65 70 75 80

Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu 85 90 95

Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Asn



100 105 110

Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gln Arg Ile Thr Leu 115 120 125

Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg 130 135 140

Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser 145 150 155 160

Leu Arg Ser Lys Glu 165

<210> 18

<211> 189

<212> PRT

<213> Mus musculus

<400> 18

Met Ala Arg Leu Cys Ala Phe Leu Met Val Leu Ala Val Met Ser Tyr 1 5 10 15

Trp Pro Thr Cys Ser Leu Gly Cys Asp Leu Pro Gln Thr His Asn Leu 20 25 30

Arg Asn Lys Arg Ala Leu Thr Leu Leu Val Gln Met Arg Arg Leu Ser 35 40 45

Pro Leu Ser Cys Leu Lys Asp Arg Lys Asp Phe Gly Phe Pro Gln Glu 50 55 60

Lys Val Asp Ala Gln Gln Ile Lys Lys Ala Gln Ala Ile Pro Val Leu 65 70 75 80

Ser Glu Leu Thr Gln Gln Ile Leu Asn Ile Phe Thr Ser Lys Asp Ser 85 90 95

Ser Ala Ala Trp Asn Ala Thr Leu Leu Asp Ser Phe Cys Asn Asp Leu 100 105 110

His Gln Gln Leu Asn Asp Leu Gln Gly Cys Leu Met Gln Gln Val Gly
115 120 125

Val Gln Glu Phe Pro Leu Thr Gln Glu Asp Ala Leu Leu Ala Val Arg 130 135 140

Lys Tyr Phe His Arg Ile Thr Val Tyr Leu Arg Glu Lys Lys His Ser 145 150 155 160

Pro Cys Ala Trp Glu Val Val Arg Ala Glu Val Trp Arg Ala Leu Ser 165 170 175

Ser Ser Ala Asn Val Leu Gly Arg Leu Arg Glu Glu Lys 180 185

```
<210> 19
<211> 195
<212> PRT
<213> Antilocapra americana
<400> 19
Met Ala Gln Leu Leu Pro Leu Leu Thr Ala Leu Val Leu Cys Ser Tyr
Gly Pro Val Gly Ser Leu Gly Cys Asp Leu Pro His Asn Ser Ala Pro
                                 25
Leu Ser Arg Lys Thr Leu Val Leu Leu Asp Gln Met Arg Arg Val Ser
                             40
Pro Val Leu Cys Leu Lys Asp Arg Arg Asp Phe Gln Phe Pro Arg Glu
Val Val Asn Gly Ser Gln Phe Gln Lys Asn Gln Thr Val Ser Val Leu
                                          75
His Glu Met Leu Gln Gln Ile Phe Asn Leu Leu His Thr Ala Arg Ser
                 85
Ser Ala Ala Trp Asn Asn Thr Leu Leu Glu Glu Leu His Thr Ala Leu
                                105
His Gln Gln Leu Gln Gly Leu Glu Thr Cys Leu Val Gln Ala Met Gly
                            120
Glu Glu Asp Ser Val Leu Thr Ala Asp Ser Pro Met Leu Met Leu Lys
    130
                        135
Arg Tyr Phe Gln Arg Ile Arg Leu Tyr Leu Asp Glu Lys Lys His Ser
                    150
                                        155
Gly Cys Ala Trp Glu Leu Val Arg Met Glu Ile Arg Arg Ala Phe Ser
                165
```

J5 CM

Ala Ser Ser 195

<210> 20

<211> 43

<212> PRT

<213> Artificial Sequence

180

<220>

<223> Description of Artificial Sequence:Consensus
 sequence

Ser Thr Ala Asp Leu Gln Glu Ser Leu Arg Ser Lys Asp Gly Asp Leu

185

<400> 20

Phe Pro Glu Gln Lys Leu Glu Met Gln Gln Ile Phe Phe Ser Ser Ala 1 5 10 15

Trp Asn Thr Leu Gln Gln Leu Leu Cys Gly Leu Leu Tyr Phe Arg Ile 20 25 30

Tyr Leu Glu Lys Lys Ser Cys Ala Trp Glu Val 35 40

<210> 21

<211> 184

<212> PRT

<213> Equus caballus

<400> 21

Met Ala Leu Pro Val Ser Leu Leu Met Ala Leu Val Val Leu Ser Cys
1 5 10 15

His Ser Ile Cys Ser Leu Gly Cys Asp Leu Pro His Thr His Ser Leu 20 25 30

Gly Asn Thr Arg Val Leu Met Leu Leu Gly Gln Met Arg Arg Ile Ser 35 40 45

Pro Phe Ser Cys Leu Lys Asp Arg Asn Asp Phe Gly Phe Pro Gln Glu 50 55 60

Val Phe Asp Gly Asn Gln Phe Arg Lys Pro Gln Ala Ile Ser Ala Val 65 70 75 80

His Glu Thr Ile Gln Gln Ile Phe His Leu Phe Ser Thr Asp Gly Ser 85 90 95

Ser Ala Ala Trp Asp Glu Ser Leu Leu Asp Lys Leu Tyr Thr Gly Leu
100 105 110

Tyr Gln Gln Leu Thr Glu Leu Glu Ala Cys Leu Ser Gln Glu Val Gly
115 120 125

Val Glu Glu Thr Pro Leu Met Asn Glu Asp Ser Leu Leu Ala Val Arg 130 135 140

Arg Tyr Phe Gln Arg Ile Ala Leu Tyr Leu Gln Glu Lys Lys Tyr Ser 145 150 155 160

Pro Cys Ala Trp Glu Ile Val Arg Ala Glu Ile Met Arg Ser Phe Ser 165 170 175

Ser Ser Thr Asn Leu Pro Gln Ser 180

<210> 22

<211> 92

<212> PRT

<213> Artificial Sequence

```
<220>
<223> Description of Artificial Sequence:Consensus
      sequence
<400> 22
Ser Leu Leu Ala Leu Val Ser Leu Gly Cys Asp Leu Pro His Leu Leu
Leu Gln Met Arg Cys Lys Asp Arg Asp Phe Phe Pro Gln Gly Gln Lys
Ala Gln Ser His Gln Gln Ile Phe Leu Phe Thr Ser Ser Ala Ala Trp
                             40
Asn Leu Leu Asp Leu Thr Gly Leu Gln Leu Leu Glu Cys Gln Glu Gly
                         55
Glu Leu Leu Arg Tyr Phe Gln Tyr Leu Glu Lys Lys Tyr Ser Cys Ala
                     70
                                         75
Trp Glu Val Arg Glu Ile Met Ser Ser Thr Leu Gln
                 85
<210> 23
<211> 3144
<212> DNA
<213> Homo sapiens
<400> 23
gcctggctcc ctctcgctga gacacacata cactcacaca tacacaaccc ggcaggctcg 60
tctgaacttg aagacacccc acattccaag atgcccgagg ttcctggggaa tgcctggggt 120
tettegatee ggaaaateet aceggeatee teetagggag ggattattat tattatttt 180
ctttaatctg gaagagaaga gaacaagttg tgcttttccc cccttcttct tgctaaacgc 240
catggatata actgaataag cggctcaggg ctttccccgc gtggacgtcc gaggccacca 300
tetgeetgea ttegeeggag eegeeggagg gtttageteg agtetgtete gggeggggaa 360
ggatgcgtgg ccgagccggg gagcccgggc gccccgcgga gccggcctcg gtgccaccca 420
gccgggggta gatgctgcct cgcccaggcg ctgagtgacc agaccatgga gaccctgctt 480
ggtggcctgc tagcgtttgg catggcgttt gccgtggtcg acgcctgccc caagtactgt 540
gtctgccaga atctgtctga gtcactgggg accctgtgcc cctccaaggg gctgctcttt 600
gtacccctg atattgaccg gcggacagtg gagctgcgcc tgggcggcaa cttcatcatc 660
cacatcagcc gccaggactt tgccaacatg acggggctgg tggacctgac cctgtccagg 720
aacaccatca gccacatcca gcccttttcc tttctggacc tcgagagcct ccgctccctg 780
catcttgaca gcaatcggct gccaagcctt ggggaggaca ccctccgggg cctggtcaac 840
ctgcagcacc ttatcgtgaa caacaaccag ctgggcggca tcgcagatga ggcttttgag 900
gactteetge tgacattgga ggatetggae eteteetaca acaaceteca tggeetgeeg 960
tgggactccg tgcgacgcat ggtcaacctc caccagctga gcctggacca caacctgctg 1020
gatcacatcg ccgagggcac ctttgcagac ctgcagaaac tggcccgcct ggatctcacc 1080
tccaatcggc tgcagaagct gcccctgat cccatctttg cccgctccca ggcttcggct 1140
ttgacagcca caccetttge eccacettg teetttagtt ttgggggtaa eccaetteae 1200
tgcaattgtg agcttctctg gctgcggagg ctcgagcggg acgatgacct ggaaacctgt 1260
ggctccccag ggggcctcaa gggtcgctac ttctggcatg tgcgtgagga ggagtttgtg 1320
tgcgagccgc ctctcatcac ccagcacaca cacaagttgc tggttctgga gggccaggcg 1380
gccacactca agtgcaaagc cattggggac cccagcccc ttatccactg ggtagcccc 1440
```

Do

gatgaccgcc tggtagggaa ctcctcaagg accgctgtct atgacaatgg caccctggac 1500 atcttcatca ccacatctca ggacagtggt gccttcacct gcattgctgc caatgctgcc 1560 ggagaggcca cggccatggt ggaggtctcc atcgtccagc tgccacacct cagcaacagc 1620

```
accageegea etgeaceece caagteeege eteteagaea teaetggete cageaagaee 1680
agccggggag gtggaggcag tgggggcgga gagcctccca aaagcccccc ggaacgggct 1740
gtgcttgtgt ctgaagtgac caccacctcg gccctggtca agtggtctgt cagcaagtca 1800
gcaccccggg tgaagatgta ccagctgcag tacaactgct ctgacgatga ggtactgatt 1860
tacaggatga tcccagcctc caacaaggcc ttcgtggtca acaacctggt gtcagggact 1920
ggctacgact tgtgtgtgct ggccatgtgg gatgacacag ccacgacact cacggccacc 1980
aacatcgtgg gctgcgccca gttcttcacc aaggctgact acccgcagtg ccagtccatg 2040
cacagocaga ttctgggcgg caccatgatc ctggtcatcg ggggcatcat cgtggccacg 2100
ctgctggtct tcatcgtcat cctcatggtg cgctacaagg tctgcaacca cgaggccccc 2160
agcaagatgg cagcggccgt gagcaatgtg tactcgcaga ccaacggcgc ccagccaccg 2220
cctccaagca gcgcaccagc cggggccccg ccgcagggcc cgccgaaggt ggtggtqcqc 2280
aacgagetee tggactteac egecageetg geeegegeea gtgacteete tteeteeage 2340
tecetgggea gtggggagge tgeggggetg ggaegggeee eetggaggat eecaecetee 2400
geoegegee ccaageceag cettgacege etgatggggg cettegeete eetggacete 2460
aagagtcaga gaaaggagga gctgctggac tccaggactc cagccgggag aggggctggg 2520
acgtcggccc ggggccacca ctcggaccga gagccactgc tggggccccc tgcqqcccqq 2580
gccaggagcc tgctcccctt gccgttggag ggcaaggcca aacgcagcca ctccttcgac 2640
atgggggact ttgctgctgc ggcggcggga ggggtcgtgc cgggcggcta cagtcctcct 2700
cggaaggtct cgaacatctg gacgaagcgc agcctctctg tcaacggcat gctcttgccc 2760
tttgaggaga gtgacctggt gggggcccgg gggacttttg gcagctccga atgggtgatg 2820
gagagcacgg tctaggtggg ggtgggcatg ctccctttcc tgtgcgcagg gtgggagaag 2880
gggaaagaat ctcactggca agtgtttgtg gagtttccat ggtgatgttt acatccaggg 2940
acagtttcgt ctccctgtca atggcctcgt gtcccccct accccgcaac acccacatca 3000
cctccccacc acccggccgg ggtgtgctca gggaatgtgg actcgctcaa atgccggact 3060
gagccctgag tgtttggaaa ggcgagactc cgcctttcta atcacaaatg tagcctacaa 3120
gcaagcggct ttggattgct tatg
                                                                  3144
<210> 24
<211> 832
<212> PRT
<213> Homo sapiens
<400> 24
Leu Glu Ser Val Ser Gly Gly Glu Gly Cys Val Ala Glu Pro Gly Ser
Pro Gly Ala Pro Arg Ser Arg Pro Arg Cys His Pro Ala Gly Gly Arg
                                 25
Cys Cys Leu Ala Gln Ala Leu Ser Asp Gln Thr Met Glu Thr Leu Leu
                             40
Gly Gly Leu Leu Ala Phe Gly Met Ala Phe Ala Val Asp Ala Cys
                         55
Pro Lys Tyr Cys Val Cys Gln Asn Leu Ser Glu Ser Leu Gly Thr Leu
 65
                     70
                                         75
Cys Pro Ser Lys Gly Leu Leu Phe Val Pro Pro Asp Ile Asp Arg Arg
                                     90
Thr Val Glu Leu Arg Leu Gly Gly Asn Phe Ile Ile His Ile Ser Arg
            100
                                105
                                                    110
Gln Asp Phe Ala Asn Met Thr Gly Leu Val Asp Leu Thr Leu Ser Arg
```

125

120

Asn Thr Ile Ser His Ile Gln Pro Phe Ser Phe Leu Asp Leu Glu Ser Leu Arg Ser Leu His Leu Asp Ser Asn Arg Leu Pro Ser Leu Gly Glu Asp Thr Leu Arg Gly Leu Val Asn Leu Gln His Leu Ile Val Asn Asn Asn Gln Leu Gly Gly Ile Ala Asp Glu Ala Phe Glu Asp Phe Leu Leu Thr Leu Glu Asp Leu Asp Leu Ser Tyr Asn Asn Leu His Gly Leu Pro Trp Asp Ser Val Arg Arg Met Val Asn Leu His Gln Leu Ser Leu Asp His Asn Leu Leu Asp His Ile Ala Glu Gly Thr Phe Ala Asp Leu Gln Lys Leu Ala Arg Leu Asp Leu Thr Ser Asn Arg Leu Gln Lys Leu Pro Pro Asp Pro Ile Phe Ala Arg Ser Gln Ala Ser Ala Leu Thr Ala Thr Pro Phe Ala Pro Pro Leu Ser Phe Ser Phe Gly Gly Asn Pro Leu His Cys Asn Cys Glu Leu Leu Trp Leu Arg Arg Leu Glu Arg Asp Asp Leu Glu Thr Cys Gly Ser Pro Gly Gly Leu Lys Gly Arg Tyr Phe Trp His Val Arg Glu Glu Glu Phe Val Cys Glu Pro Pro Leu Ile Thr Gln His Thr His Lys Leu Leu Val Leu Glu Gly Gln Ala Ala Thr Leu Lys Cys Lys Ala Ile Gly Asp Pro Ser Pro Leu Ile His Trp Val Ala Pro Asp Asp Arg Leu Val Gly Asn Ser Ser Arg Thr Ala Val Tyr Asp Asn Gly Thr Leu Asp Ile Phe Ile Thr Thr Ser Gln Asp Ser Gly Ala Phe Thr Cys Ile Ala Ala Asn Ala Ala Gly Glu Ala Thr Ala Met Val Glu

Do cont

Val Ser Ile Val Gln Leu Pro His Leu Ser Asn Ser Thr Ser Arg Thr

Ala Pro Pro Lys Ser Arg Leu Ser Asp Ile Thr Gly Ser Ser Lys Thr Ser Arg Gly Gly Gly Ser Gly Gly Glu Pro Pro Lys Ser Pro Pro Glu Arg Ala Val Leu Val Ser Glu Val Thr Thr Ser Ala Leu Val Lys Trp Ser Val Ser Lys Ser Ala Pro Arg Val Lys Met Tyr Gln Leu Gln Tyr Asn Cys Ser Asp Asp Glu Val Leu Ile Tyr Arg Met Ile Pro Ala Ser Asn Lys Ala Phe Val Val Asn Asn Leu Val Ser Gly Thr Gly Tyr Asp Leu Cys Val Leu Ala Met Trp Asp Asp Thr Ala Thr Thr Leu Thr Ala Thr Asn Ile Val Gly Cys Ala Gln Phe Phe Thr Lys Ala Asp Tyr Pro Gln Cys Gln Ser Met His Ser Gln Ile Leu Gly Gly Thr Met Ile Leu Val Ile Gly Gly Ile Ile Val Ala Thr Leu Leu Val Phe Ile Val Ile Leu Met Val Arg Tyr Lys Val Cys Asn His Glu Ala Pro Ser Lys Met Ala Ala Ala Val Ser Asn Val Tyr Ser Gln Thr Asn Gly Ala Gln Pro Pro Pro Ser Ser Ala Pro Ala Gly Ala Pro Pro Gln Gly Pro Pro Lys Val Val Val Arg Asn Glu Leu Leu Asp Phe Thr Ala Ser Leu Ala Arg Ala Ser Asp Ser Ser Ser Ser Ser Leu Gly Ser Gly Glu Ala Ala Gly Leu Gly Arg Ala Pro Trp Arg Ile Pro Pro Ser Ala Pro Arg Pro Lys Pro Ser Leu Asp Arg Leu Met Gly Ala Phe Ala Ser Leu Asp Leu Lys Ser Gln Arg Lys Glu Glu Leu Leu Asp Ser Arg

Ent

Thr Pro Ala Gly Arg Gly Ala Gly Thr Ser Ala Arg Gly His His Ser

Asp Arg Glu Pro Leu Leu Gly Pro Pro Ala Ala Arg Ala Arg Ser Leu 740 745 750

Leu Pro Leu Pro Leu Glu Gly Lys Ala Lys Arg Ser His Ser Phe Asp
755 760 765

Met Gly Asp Phe Ala Ala Ala Ala Gly Gly Val Val Pro Gly Gly 770 780

Tyr Ser Pro Pro Arg Lys Val Ser Asn Ile Trp Thr Lys Arg Ser Leu 785 790 795 800

Ser Val Asn Gly Met Leu Leu Pro Phe Glu Glu Ser Asp Leu Val Gly 805 810 815

Ala Arg Gly Thr Phe Gly Ser Ser Glu Trp Val Met Glu Ser Thr Val 820 825 830

<210> 25

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:IFAbd Domain
13-110

<400> 25

Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln
1 5 10 15

Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser Ser Thr Gly Trp Asn 20 25 30

Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val Tyr His Gln Ile Asn 35 40 45

His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp Phe Thr 50 55 60

Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg 65 70 75 80

Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp Thr 85 90 95

Ile Val

<210> 26 <211> 183

```
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence:pfam00143
      Domain 5-187
<400> 26
Ser Ser Phe Leu Val Ala Leu Val Ala Leu Gly Cys Asn Ser Val Cys
Ser Leu Gly Cys Asp Leu Pro Gln Thr His Gly Leu Leu Asn Arg Arg
             20
Ala Leu Thr Leu Leu Gly Gln Met Arg Arg Leu Pro Ala Ser Ser Cys
                             40
Gln Lys Asp Arg Asn Asp Phe Ala Phe Pro Gln Asp Val Phe Gly Gly
                         55
Asp Gln Ser His Lys Ala Gln Ala Leu Ser Val Val His Val Thr Asn
65
Gln Lys Ile Phe His Phe Phe Cys Thr Glu Ala Ser Ser Ser Ala Ala
Trp Asn Thr Thr Leu Leu Glu Glu Phe Cys Thr Gly Leu Asp Arg Gln
            100
Leu Thr Arg Leu Glu Ala Cys Val Leu Gln Glu Val Glu Glu Gly Glu
Ala Pro Leu Thr Asn Glu Asp Ile His Pro Glu Asp Ser Ile Leu Arg
                        135
Asn Tyr Phe Gln Arg Leu Ser Leu Tyr Leu Gln Glu Lys Lys Tyr Ser
                    150
Pro Cys Ala Trp Glu Ile Val Arg Ala Glu Ile Met Arg Ser Leu Tyr
                165
                                    170
                                                         175
Tyr Ser Ser Thr Ala Leu Gln
            180
<210> 27
```

<211> 786

<212> PRT

<213> Homo sapiens

<400> 27

Met Glu Thr Leu Leu Gly Gly Leu Leu Ala Phe Gly Met Ala Phe Ala 10

Val Val Asp Ala Cys Pro Lys Tyr Cys Val Cys Gln Asn Leu Ser Glu 25

Ser Leu Gly Thr Leu Cys Pro Ser Lys Gly Leu Leu Phe Val Pro Pro 35 Asp Ile Asp Arg Arg Thr Val Glu Leu Arg Leu Gly Gly Asn Phe Ile Ile His Ile Ser Arg Gln Asp Phe Ala Asn Met Thr Gly Leu Val Asp 70 Leu Thr Leu Ser Arg Asn Thr Ile Ser His Ile Gln Pro Phe Ser Phe 85 90 Leu Asp Leu Glu Ser Leu Arg Ser Leu His Leu Asp Ser Asn Arg Leu 105 Pro Ser Leu Gly Glu Asp Thr Leu Arg Gly Leu Val Asn Leu Gln His 120 Leu Ile Val Asn Asn Asn Gln Leu Gly Gly Ile Ala Asp Glu Ala Phe 135 Glu Asp Phe Leu Leu Thr Leu Glu Asp Leu Asp Leu Ser Tyr Asn Asn 150 Leu His Gly Leu Pro Trp Asp Ser Val Arg Arg Met Val Asn Leu His 165 170 175 Gln Leu Ser Leu Asp His Asn Leu Leu Asp His Ile Ala Glu Gly Thr 180 185 Phe Ala Asp Leu Gln Lys Leu Ala Arg Leu Asp Leu Thr Ser Asn Arg 200 Leu Gln Lys Leu Pro Pro Asp Pro Ile Phe Ala Arg Ser Gln Ala Ser 210 Ala Leu Thr Ala Thr Pro Phe Ala Pro Pro Leu Ser Phe Ser Phe Gly 230 235 Gly Asn Pro Leu His Cys Asn Cys Glu Leu Leu Trp Leu Arg Arg Leu 245 250 255 Glu Arg Asp Asp Leu Glu Thr Cys Gly Ser Pro Gly Gly Leu Lys Gly Arg Tyr Phe Trp His Val Arg Glu Glu Phe Val Cys Glu Pro 280 Pro Leu Ile Thr Gln His Thr His Lys Leu Leu Val Leu Glu Gly Gln 290 295

Ala Ala Thr Leu Lys Cys Lys Ala Ile Gly Asp Pro Ser Pro Leu Ile

His Trp Val Ala Pro Asp Asp Arg Leu Val Gly Asn Ser Ser Arg Thr

310

Document

305

330

315

Ala Val Tyr Asp Asn Gly Thr Leu Asp Ile Phe Ile Thr Thr Ser Gln 340 Asp Ser Gly Ala Phe Thr Cys Ile Ala Ala Asn Ala Ala Gly Glu Ala 360 -Thr Ala Met Val Glu Val Ser Ile Val Gln Leu Pro His Leu Ser Asn 375 380 Ser Thr Ser Arg Thr Ala Pro Pro Lys Ser Arg Leu Ser Asp Ile Thr 385 390 395 Gly Ser Ser Lys Thr Ser Arg Gly Gly Gly Gly Ser Gly Gly Glu Pro Pro Lys Ser Pro Pro Glu Arg Ala Val Leu Val Ser Glu Val Thr 425 Thr Thr Ser Ala Leu Val Lys Trp Ser Ser Val Ser Lys Ser Ala Pro 435 Arg Val Lys Met Tyr Gln Leu Gln Tyr Asn Cys Ser Asp Glu Val Leu Ile Tyr Arg Met Ile Pro Ala Ser Asn Lys Ala Phe Val Val Asn Asn 470 475 Leu Val Ser Gly Thr Gly Tyr Asp Leu Cys Val Leu Ala Met Trp Asp 490 Asp Thr Ala Thr Thr Leu Thr Ala Thr Asn Ile Val Gly Cys Ala Gln 505 Phe Phe Thr Lys Ala Asp Tyr Pro Gln Cys Gln Ser Met His Ser Gln 515 Ile Leu Gly Gly Thr Met Ile Leu Val Ile Gly Gly Ile Val Ala Thr Leu Leu Val Phe Ile Val Ile Leu Met Val Arg Tyr Lys Val Cys Asn 545 550 555 His Glu Ala Pro Ser Lys Met Ala Ala Ala Val Ser Asn Val Tyr Ser 565 Gln Thr Asn Gly Ala Gln Pro Pro Pro Ser Ser Ala Pro Ala Gly Ala 580 585 Pro Pro Gln Gly Pro Pro Lys Val Val Arg Asn Glu Leu Leu Asp 595 600 Phe Thr Ala Ser Leu Ala Arg Ala Ser Asp Ser Ser Ser Ser Ser Ser 615

635

Leu Gly Ser Gly Glu Ala Ala Gly Leu Gly Arg Ala Trp Arg Ile Pro

Pro Ser Ala Pro Arg Pro Lys Pro Ser Leu Asp Arg Leu Met Gly Ala 645 650 655

Phe Ala Ser Leu Asp Leu Lys Ser Gln Arg Lys Glu Glu Leu Leu Asp 660 665 670

Ser Arg Thr Pro Ala Gly Arg Gly Ala Gly Thr Ser Ala Arg Gly His 675 680 685

His Ser Asp Arg Glu Pro Leu Leu Gly Pro Pro Ala Ala Arg Ala Arg 690 695 700

Ser Leu Leu Pro Leu Pro Leu Glu Gly Lys Ala Lys Arg Ser His Ser 705 710 715 720

Phe Asp Met Gly Asp Phe Ala Ala Ala Ala Ala Gly Gly Val Val Pro 725 730 735

Gly Gly Tyr Ser Pro Pro Arg Lys Val Ser Asn Ile Trp Thr Lys Arg
740 745 750

Ser Leu Ser Val Asn Gly Met Leu Leu Pro Phe Glu Glu Ser Asp Leu 755 760 765

Val Gly Ala Arg Gly Thr Phe Gly Ser Ser Glu Trp Val Met Glu Ser 770 780

Thr Val